Installation and Operating Instructions

GDH-Eco Air Split series

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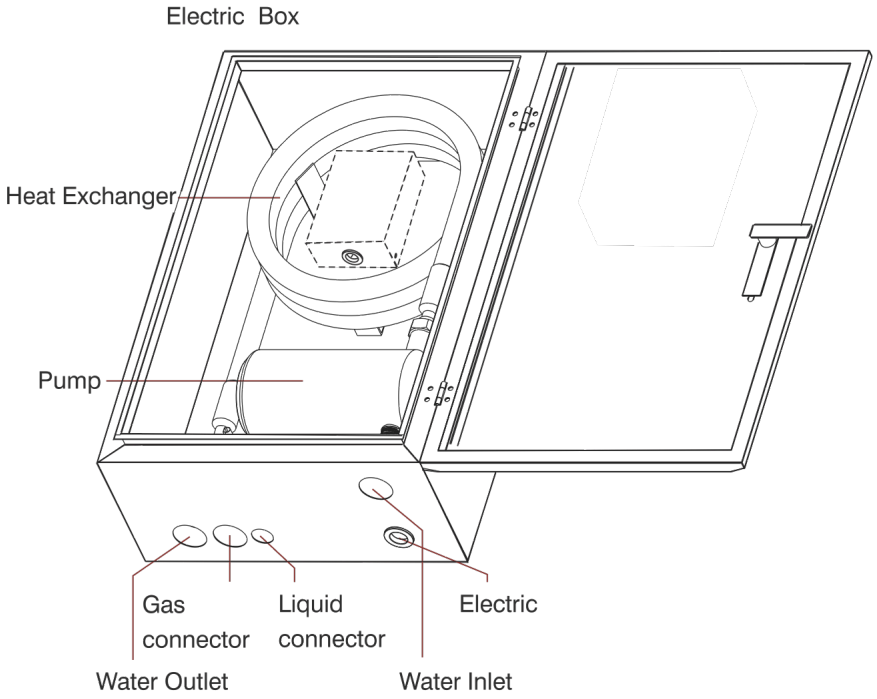
Safety instructions

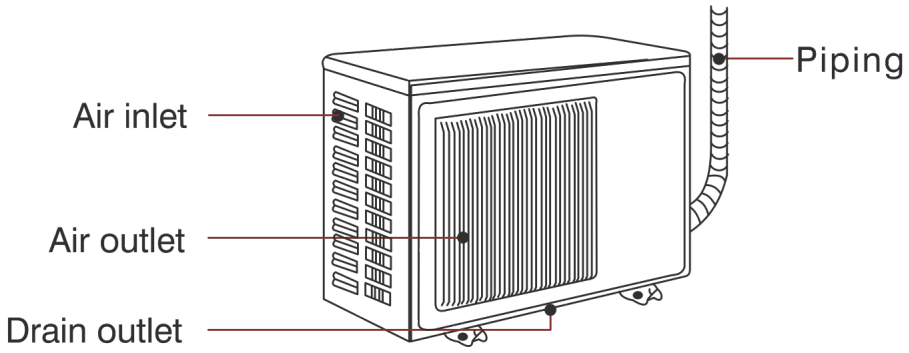
- This unit should not be installed in any area where flammable liquids or vapors may be present. Do not store or use gasoline or other combustible materials or liquids near or adjacent to this water heater.
- Do not use this unit if it has been dropped or damaged in any way.
- Check the rating plate on the unit before installation to make certain the voltage shown is the same as the electricity supply to the water heater.
- The unit must be connected only to a properly grounded electrical supply. Do not fail to properly ground the unit.
- This unit should only be serviced by qualified service personnel.
- Always shut off electric power before making unit connections or removing any panels and be extremely careful to avoid injury.
- Components may have sharp edges or protrusions which can cut you.
- Tubing and compressor contain high pressure refrigerant and they should not be exposed to high temperature or be punctured.
- Water temperature over 52 °C (125 °f) can cause severe burns or death from scalding. Feel the water before bathing or showering. Children, disabled, and elderly are at highest risk of being scalded.
- Tampering with the thermostat, heater, elements or electrical connections is dangerous and may result in serious injury. Only properly trained, qualified service personnel should service these components. Do not attempt to modify or change this water heater in any way.

Components

Indoor unit



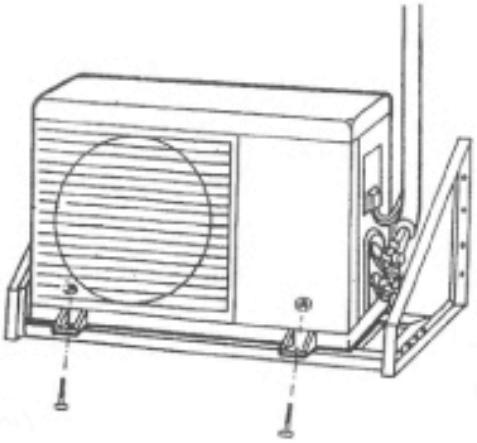
Outdoor unit



Connection Indoor and Outdoor Unit

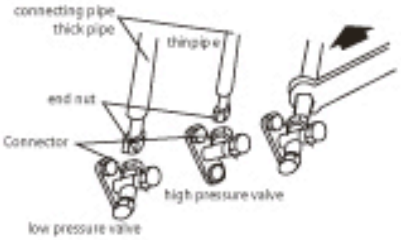
Select the Installation Place of Outdoor Unit

- The outdoor unit should be installed on a solid wall and fastened securely.
- The following procedure must be observed before connecting the pipes or electric cables.
  1) decide which is the best position on the wall and leave enough space to be able to carry out maintenance easily.
  2) fasten the outdoor unit support to the wall using screw anchors which are particularly suited to that type of wall.
  3) use a larger quantity of screw anchors than normally required for the weight they have to bear: during operation the machine vibrates and has to remain fastened in the same position for years without the screws becoming loose.
  4) mount the outdoor unit on the support using the four bolts supplied.



Piping Connecton

1. Open the cover of the outdoor unit.
2. Connect the pipe to the indoor unit and outdoor unit.
   - Wipe the quick connectorswith clean cloth to prohibit dust and impurity entering the pipes.
   - Align the centre of the pipe and fully screw in the angular nuts with Finger.



3. Use Vacuum pump to remove the air from indoor unit and connection pipe.

4. Connect the electric cable as per circuit diagram, and bundle it with the connecting pipe.
5. Take off the nuts in the mouths of high valve and low valve, turn the valves core anticlockwise with hexagon panner till the valves are opened completely. Recover and tighten the nuts.

6. Check leakage: check if there is leakage at each connection of the pipes or nuts. If yes, remedial neasure must be taken, leakage is not permitted in any case.

Attention :

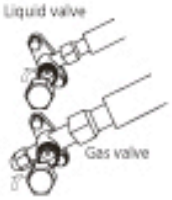
- When connectiong the pipe, a suitable pitching spanner mustbe used. If other spanner is used, it may damage the joint due to inappropriate force.
- On connecting the pipe, one should ensure that the insulating material of the pipe be closely fitted to the nuts at the joint.
- On connecting to the external unit, the pipe should be wrapped with sponge padding to prevent rain water from flowing in.
- When bending the pipe, the radius cannot be too small and be about 150160 mm.

- **If the machine needs to be disconnected and moved to another place or refrigerant charging, please recycle the gas back into the compressor according to the following steps before doing the disconnecting:**

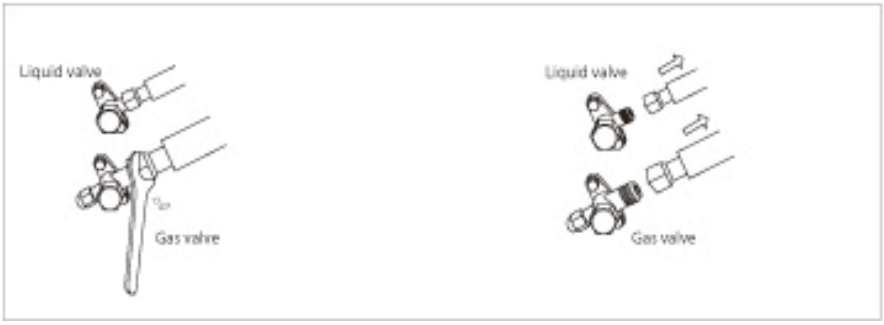
  1. **First the machine should be in the " off "state , Press the " mode "button for 3 second , and the letter " C "display.**
  2. **Remove the cap of two valves with the spanner.**

  3. **Tighten the core of the liquid valve (the smaller one) with valve key at first . After about 20 seconds, tighten the core of the gas (the bigger one) with valve key. Turn off the a/c at once and cut off the power supply.**

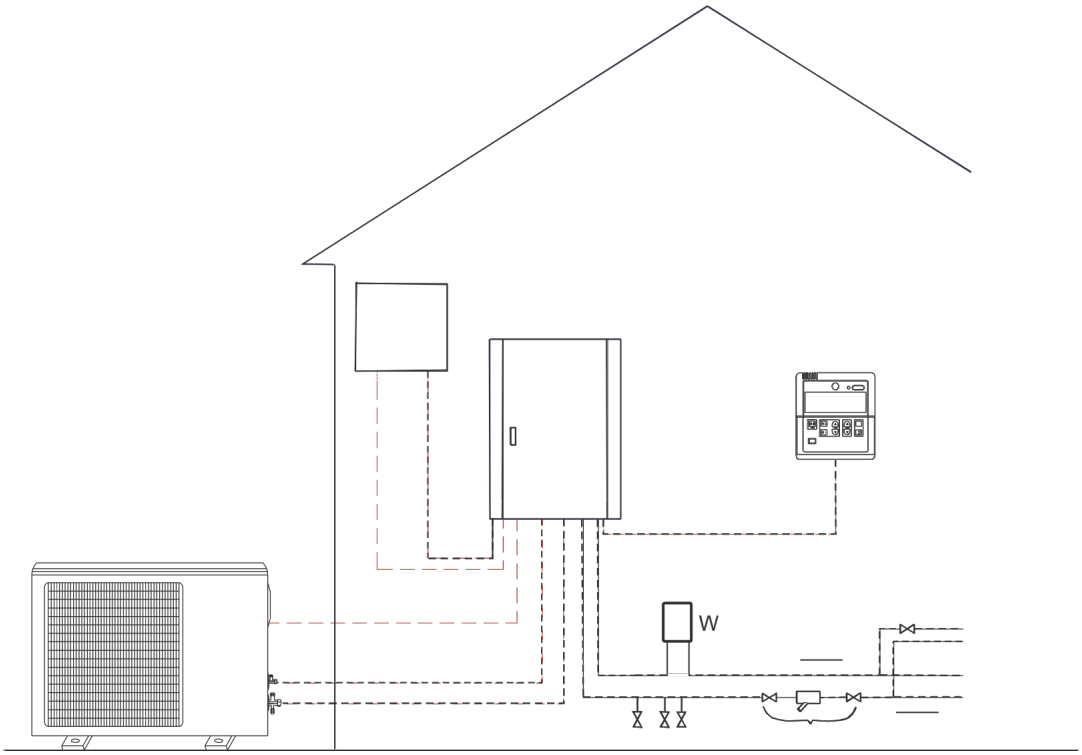
  4. **Tighten the cap of two valves.**



  5. **Press the " mode "button for 3 seconds again to exit the refrigerant collection , And Disconnect the power cable from outdoor unit.**
  6. **loose the nut of the connect pipe to the outdoor unit valve with 2 spanner, disconnect the connect pipe and the two valves.**



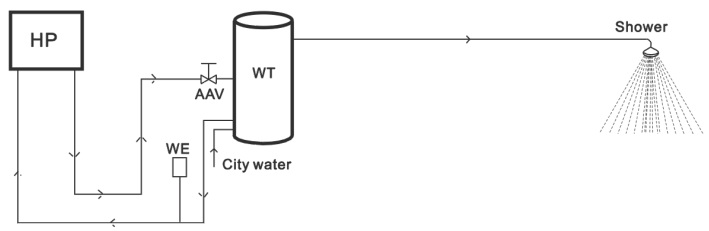
House Installation



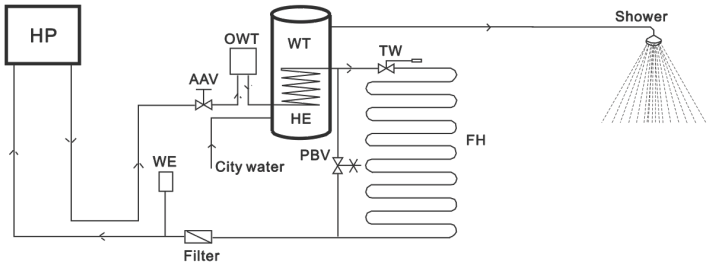
Label	Element	Supplied	Observations
CD	Wired controller	Y	
F1	800μm filter with 2 isolation valves	N	
PC	Heating floor pipe	N	
R	filling	N	
TA	Building electric box	N	
UE	Outoor unit	Y	
UI	indoor unit	Y	
V	water draining	N	
----------	water pipe	N	
----------	Refrigerant pipe	O	
.....	Power connection	O	
.....	Control connection	O	
W	Water tank (10-200L)	N	

Hydraulic Connection

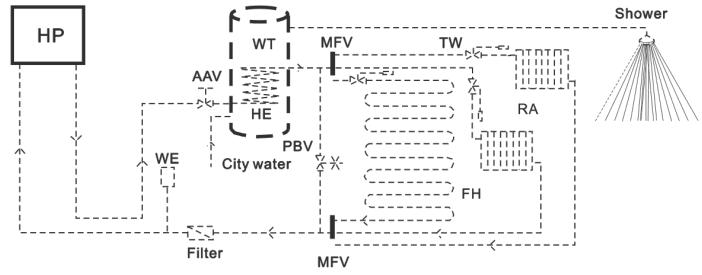
A



B



C



Label	Element	Supplied	Observations
HP	Water box or water to water	Yes	
WE	Water tank (5-10L)	Optional	
AAV	Auto air exhaust valve	NO	
OWT	Water tank (>30L)	NO	
WT	Temp Water tank	NO	
TW	Control valve	NO	
PBV	Auto Pressure by pass valve	NO	
FH	Floor heating	NO	
RA	Radiator	NO	
HE	Heat exchanger	NO	¾" pipe no less than 15m length
— — ·	Water pipe	NO	
MFV	Manifold valve	NO	

- Application on left is recommended
- Application A :

  This kind of installation, is suitable to shower or need to use the hot water.
- Application B :

  If you use like application B, you need to install a small water tank "OWT" to avoid unit stop and start frequently .
- Application C :

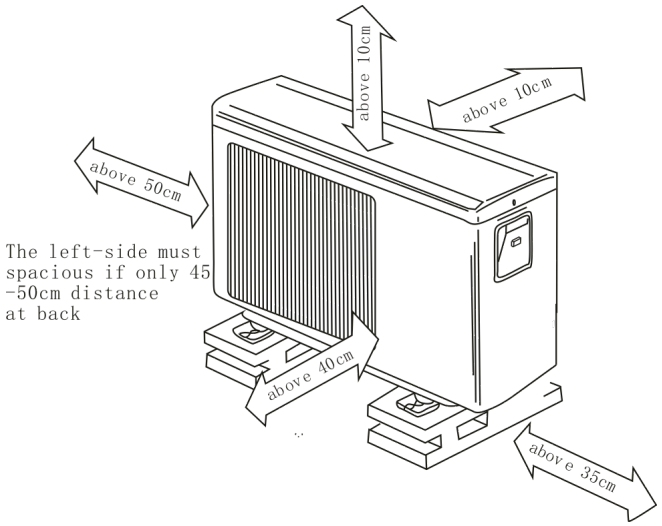
  This Application ,you can use manifold valve to set a multi- system ,floor heating , radiator ect. ,if you set many of equipments ,maybe you need to install an extra water pump in main pipe .

⚠ 1.Use any kind of installation, the "WE" must be need .
2.You must fully exhaust air in the system before you start to run unit.

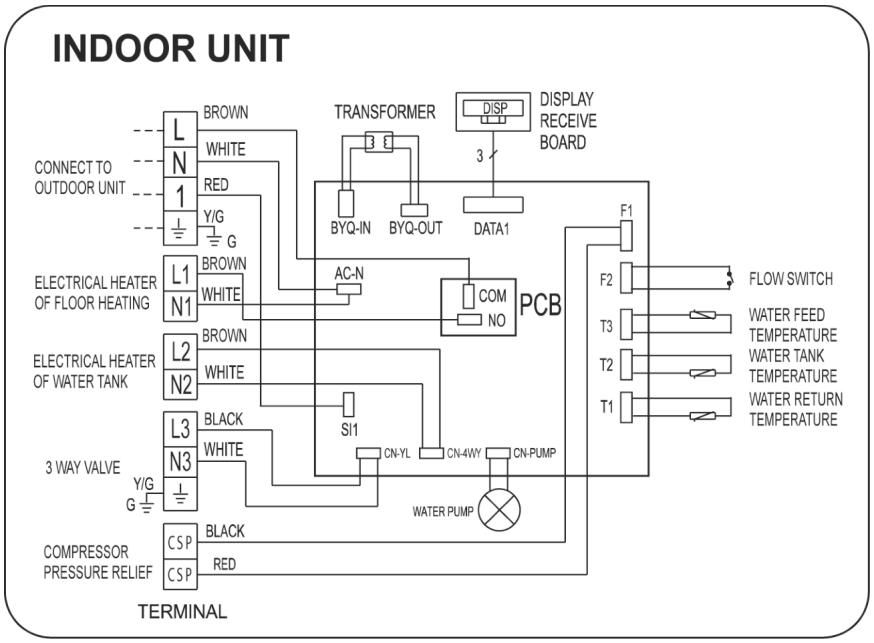
Dimensions

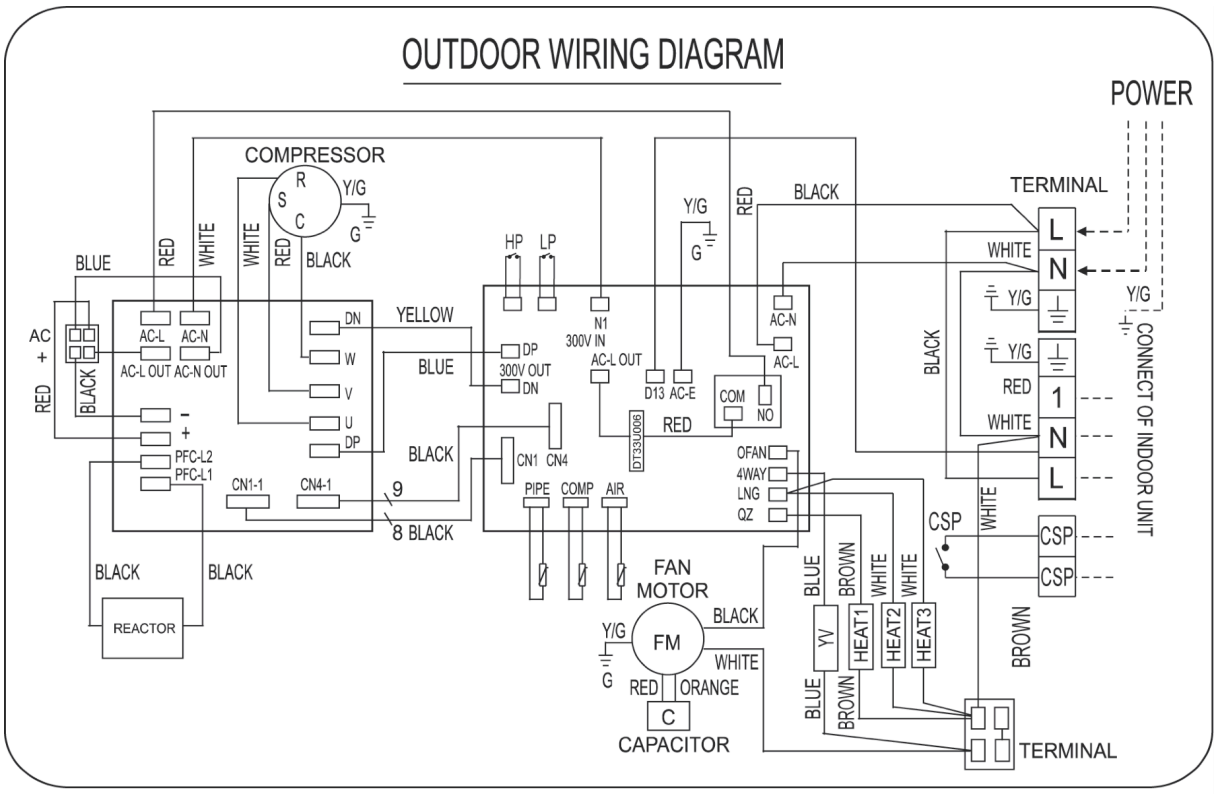
- The Heat Pump Water Heater should never be stored or installed on its side. Upright transportation is recommended. If it becomes necessary to transport the water heater on its side, the manufacturer recommends that the unit be in the upright position for a minimum of two hours prior to operation. Failure to follow these instructions may result in damage to the water heater.

- After removing the unit from the crate/carton, immediately remove the panels and inspect for any damage that might have occurred during shipment. Report concealed damage immediately to the transportation company and request inspection.
  The electric power source must be the same voltage and phase as shown on the rating plate. Line and low voltage wiring must be done in accordance with local codes or the national electric code.



Electrical Wire Diagram





Installation Procedure

- The heat pump should be mounted level on a vibration absorbing pad slightly larger
- than the base to provide isolation between the unit and floor

- Connect the heat pump with your water pipes (DN25) – inlet and outlet water

- Install a circulation water pump direct after the outlet water

- Connect the power wire on 220 Volt. Do not forget to connect on earth

- Connect the controller panel with the telephone wire

- Put the water tank sensor into your water tank

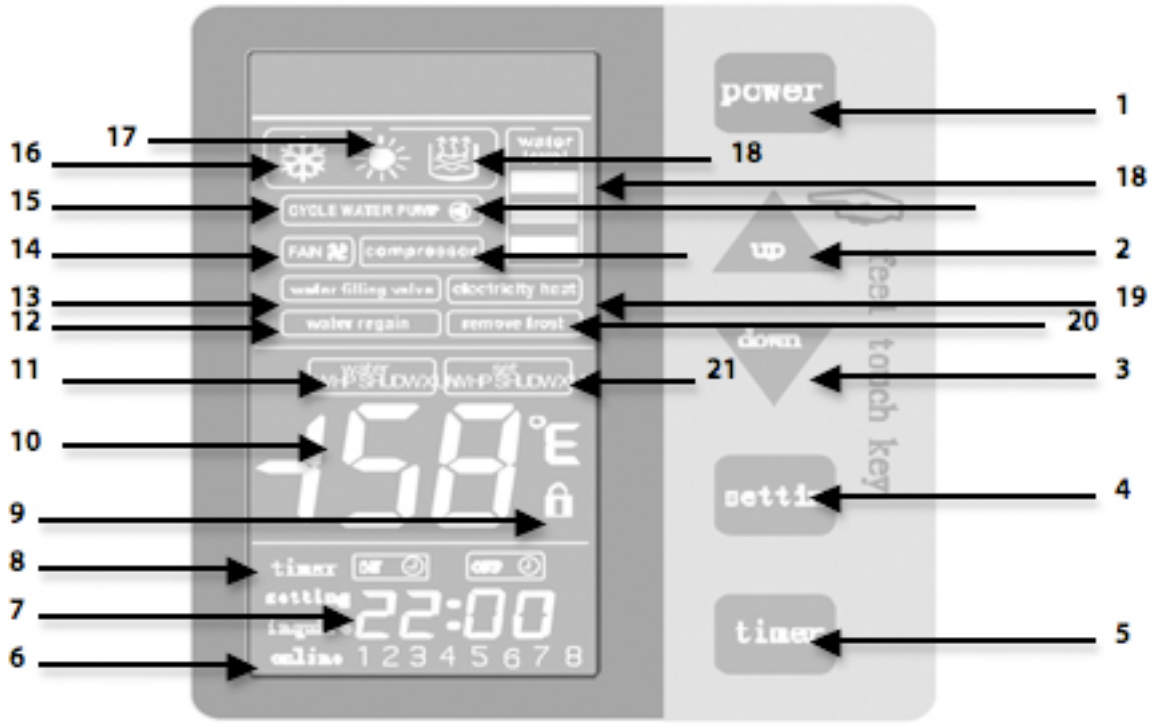
- If the heat pump installed into south side, please use the second outdoor temperature sensor. Change the existent outdoor temperature sensor. The new one is to install and to put it into the north side. The outdoor temperature sensor is not to install into the sun.

Compressor Time Delay: Be aware there is a 3 minute time delay before the compressor will start once the unit is turned on or whenever it restarts.

Connection pipe size:

DN25 = GDH70 Air Split – Inside Unit

Controller



1	On / Off	11	Latest water temperature / Error Code
2	Up	12	Not available
3	Down	13	Return water
4	Setting enter	14	Fan working
5	Timer	15	Circulate water pump working
6	Not available	16	Cooling mode
7	Time	17	Heating mode
8	Timer on / off	18	Not available
9	Locker	19	Electric assistant heater working
10	Water temperature	20	Defrosting
		21	Set water temperature

Controller – setup – operation

1. Press „power“

2. Setting the water temperature by „up“ or „down“ keys

3. Setting the inlet and outlet temperature by „setting“ key – press one time – than please press the „setting“ key for 8 seconds.

   Press „settings“ again and again until you have choose the following parameters:

   Please change the settings L3 (oulet water temperature) and L6 (inlet water temperature) into your requirements.

4. If you have set up your requirements, please press „power“ to start the heat pump.

5. You can change into heating (sun) and cooling (snow flake) mode by press the key „up“ for 8 seconds.

6. Your heat pump is set up and start to work – the compressor start by a delay of about 3 minutes.

Attention:

If your controller locked you have to press the „power“ key for 8 seconds. The controller lock by itself if you do not use it.

It is not nessescary to change other parameters – only L3 and L6 for the outlet and inlet water temperature. Also the water temperature in the display by „up“ and „down“ keys.

Controller – setup - timer

1. Press „timer“ for 11 seconds. You hear after 3 seconds the first buzzer and after 8 seconds the second buzzer

2. Press „up“ or „down“ keys to set up the time. You confirm by press „setting“

You can set up two different timers.

Example:

Timer 01

Start 08.00 Stop 13.00

Timer 02

Start 15.00 Stop 24.00

Set up the two timers:

1. Press „timer“ one time

2. Press „up“ or „down“ keys to set up the timer. You confirm by press „setting“

Parameter definations

SHOW: touch function – inquiry – touch again – quit.	
Code	**Parameter**
A1 / B1	Fan coil temperature
A2 / B2	Return gas temperature
A3 / B3	Exhaust temperature
A4 / B4	Enviroment temperature
A5 / B5	Outlet water temperature
A6 / B6	Return water temperature
A7 / B7	00
A8 / B8	Compressor current
A9 / B9	Electric expansion valve angle
This parameters show the settings of L1 – L7	

Parameter definations and settings

SETTINGS: Touch function over 3 seconds – hear a sound – off your hand – enter your settings.			
Code	**Parameter**	**Range**	**Standard setting**
/ / /	Water tank temperature setting	20 °C – 60 °C	**35 °C / 45 °C / 50 °C / 55 °C**
L1	Dummy temperature	0 °C – 15 °C	**00 °C**
L2	Compressor start & set temperature	3 °C – 18 °C	**05 °C**
L3	Set outlet water temperature	35 °C – 99 °C	**35 °C / 45 °C / 50 °C / 55 °C**
L4	Maximal water tank temperature	30 °C – 99 °C	**60 °C**
L5	Electric start temperature	0 °C – 35 °C	**00 °C** (0 °C mean no electric assistant heate
L6	Return water temperture	30 °C – 65 °C	**30 °C / 40 °C / 45 °C / 50 °C**
L7	Supplement water temperature	20 °C – 60 °C	**20 °C** (20 °C mean no supplemmet)
L8	Compressor current	0 – 48A	**0**
H1	Defrosting period	20 min. – 99 min	**35 min.**
H2	Permission temperature for defrosting	-15 °C – 1 °C	**-01 °C**
H3	Defrosting time	5 – 20 min.	**10 min.**
H4	Defrosting temperature	1 °C – 40 °C	**20 °C**
P1	Electric expansion valve adjust period	20 – 180 sec.	**30 sec.**
P2	Difference temperature between A1 and A2	-8 °C – 15 °C	**00 °C**
P3	Pemission for exhaust temperature protection	70 °C – 135 °C	**95 °C**
P4	Electric expansion valve open angel when defrosting	6 – 55 degree	**50 degree**
P5	Electric expansion valve minimal open angel	6 – 30degree	**15 degree**

Error list

Code	Reason
01E	Mistake on phase
02E	Missing phase
03E	Water flow switch
05E	Water pump – pressure or connection
06E	Low pressure – leckage/refrigerant/dirty
07E	-
08E	-
09E	Communicate
11E	Limit time pin code
12E	High exhaust temperature /
13E	-
15E	Water tank sensor broken
16E	Fan coil sensor broken
17E	-
18E	Exhaust sensor broken
19E	-
21E	Enviroment sensor broken
22E	Return water sensor broken
25E	Water level switch broken
27E	Outlet water sensor broken
28E	Return gas sensor broken
29E	Water pressure sensor broken

Maintenance

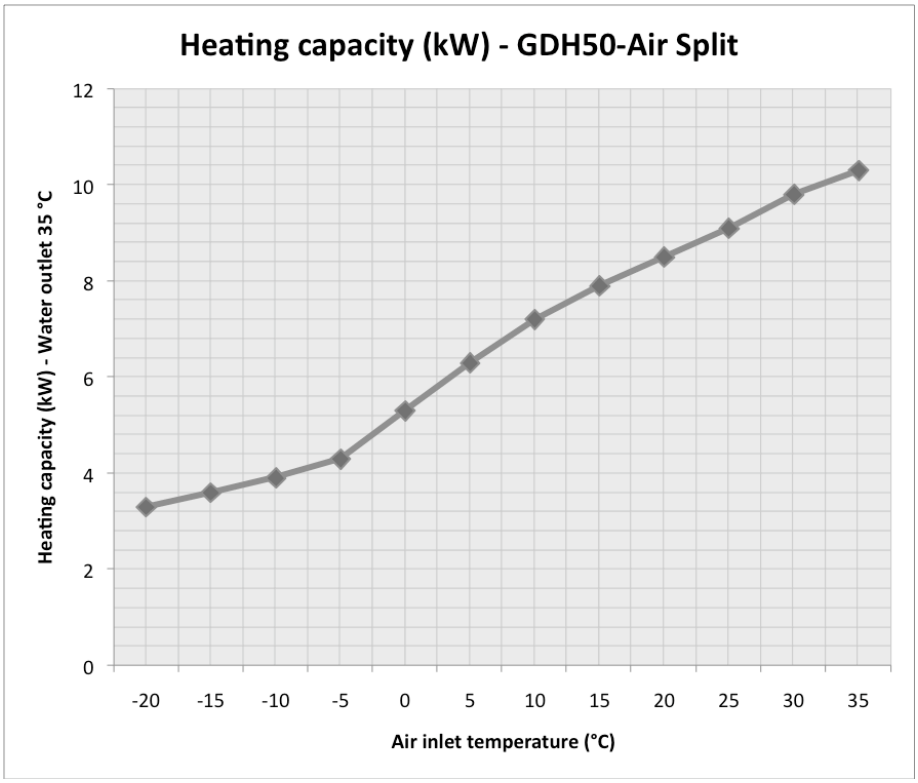
Please clean the heat pump all the time. The evaporator has to be free of leaves and other things. If you clean the heat pump please do it by off mode.

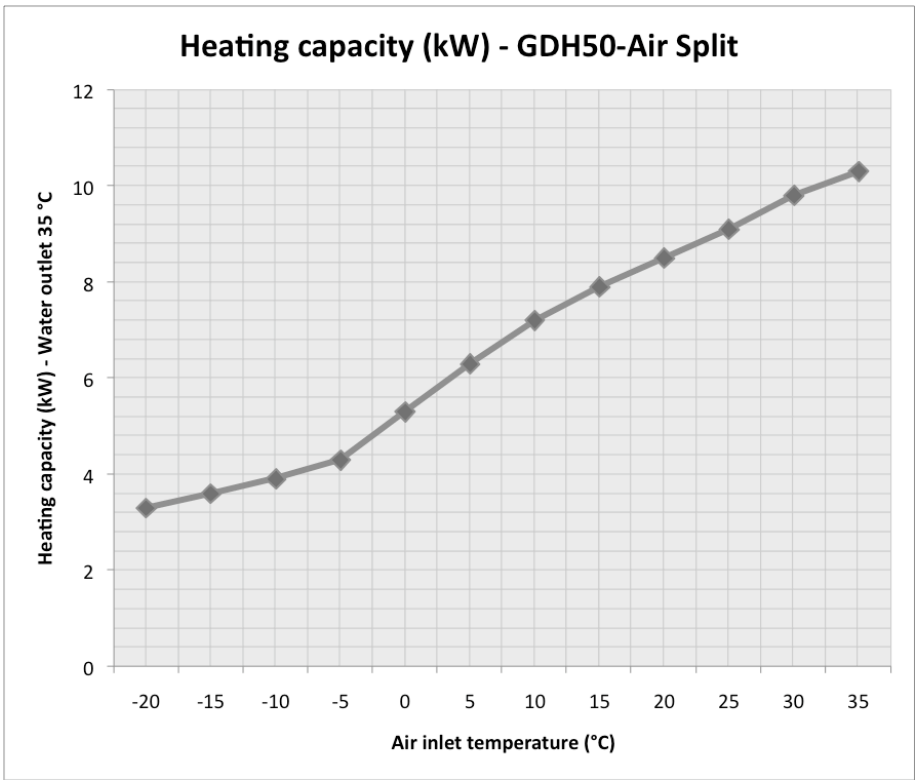
After the European enviroments requirements proof the the heat pump for any leckage by a professional.

We recommend you to maintenance the heat pump by a professional minimum one time per year. It is to proof after gas leckage, oil level of compressor and low/high pressure.

Check list

- Leckage of refrigerant
- Oil level of compressor (please change it regulary by professional)
- Low and high pressure
- Electric wires

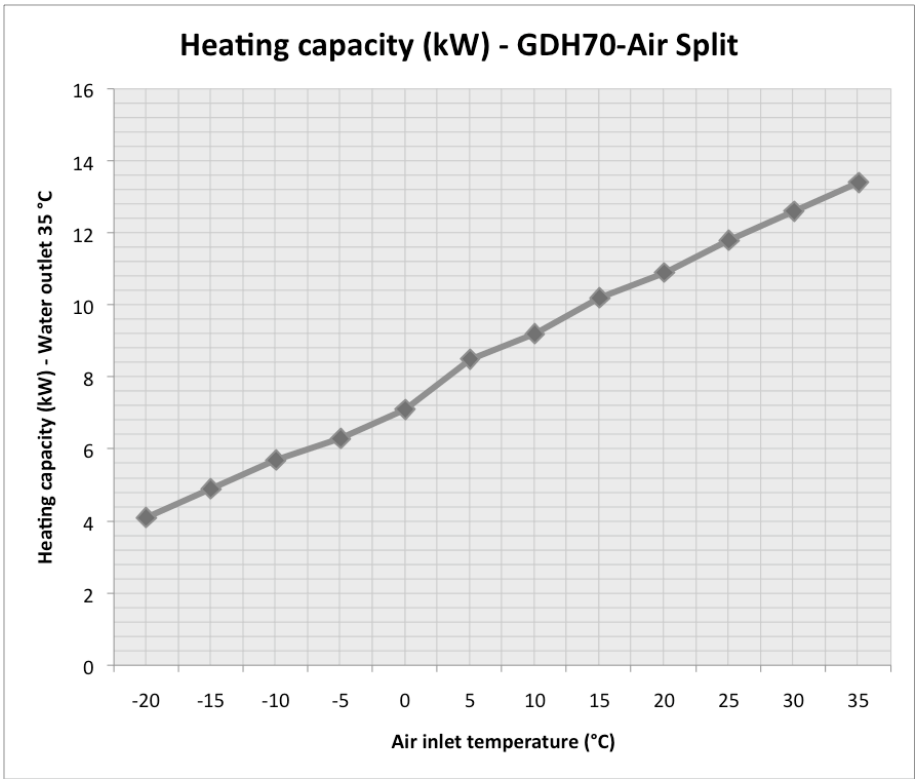

Heating capacity (kW) - GDH50-Air Split
Heating capacity (kW) - Water outlet 35 °C
0
2
4
6
8
10
12
-20
-15
-10
-5
0
5
10
15
20
25
30
35
Air inlet temperature (°C)

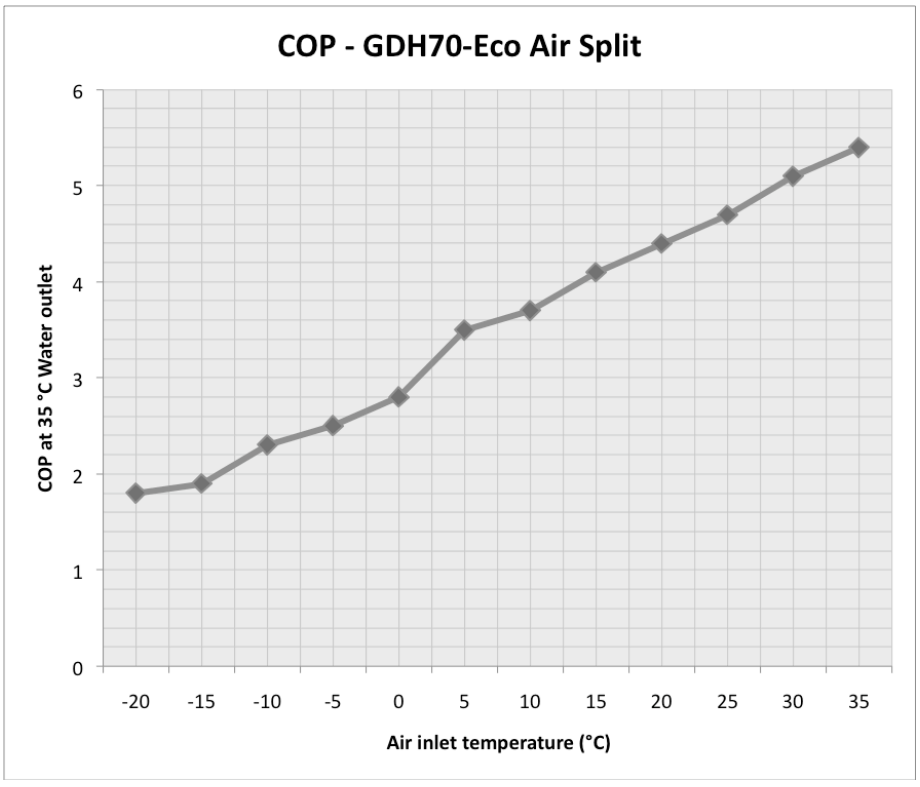

Heating capacity (kW) - GDH50-Air Split
Heating capacity (kW) - Water outlet 35 °C
0
2
4
6
8
10
12
-20
-15
-10
-5
0
5
10
15
20
25
30
35
Air inlet temperature (°C)

Technical Data GDH50-Air-Split

Outlet water max. temp. (°C) A10/W35	7,2 kW / COP 3,8
Outlet water max. temp. (°C) A7/W35	6,3 kW / COP 3,5
Outlet water max. temp. (°C) A2/W35	5,2 kW / COP 3,0
Outlet water max. temp. (°C) A-7/W35	4,1 kW / COP 2,3
Starting current	18 A
Operating current	17,2 A
Operating voltage	220V 1NAC 50 Hz
Compressor	Scroll
Max. water flow	2.500 l/h
Fuse	1 x C 25 A
Refrigerant quantity (R407c)	2,4 kg
Outdoor Unit	
High	900 mm
Width	950 mm
Depth	420 mm
Weight	45 kg
Sound level (distance 1 m)	54 dB
Indoor Unit	
High	500 mm
Width	450 mm
Depth	280 mm
Weight	25 kg
Sound level (distance 1 m)	26 dB

Subject to modification. Images for demonstration.

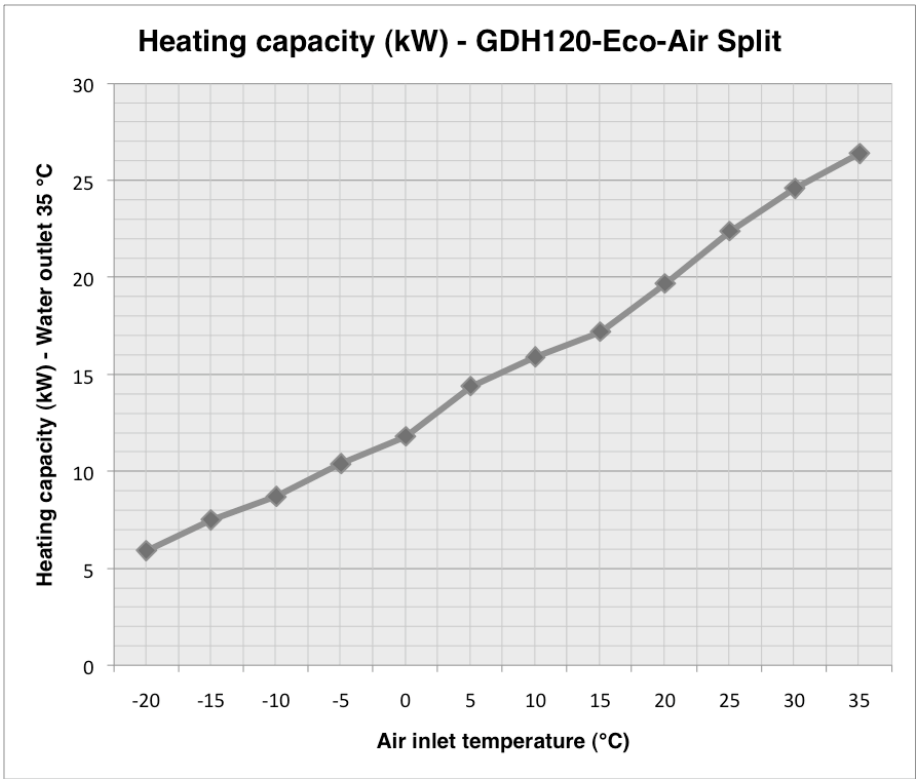

Heating capacity (kW) - GDH70-Air Split
Heating capacity (kW) - Water outlet 35 °C
16
14
12
10
8
6
4
2
0
-20
-15
-10
-5
0
5
10
15
20
25
30
35
Air inlet temperature (°C)

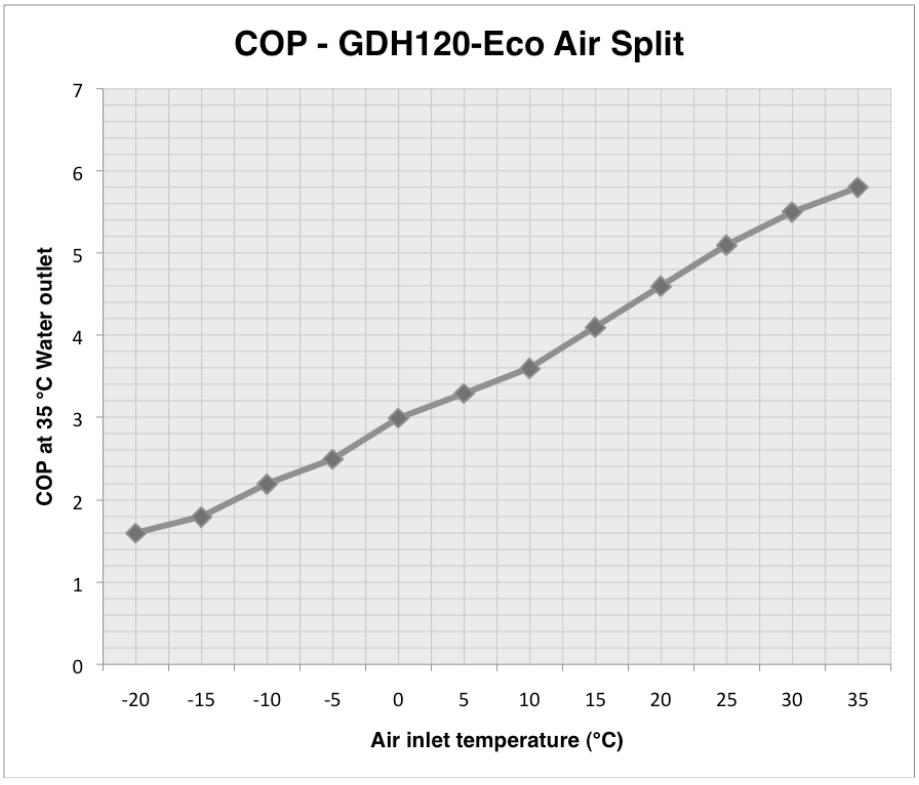

COP - GDH70-Eco Air Split
COP at 35 °C Water outlet
6
5
4
3
2
1
0
-20
-15
-10
-5
0
5
10
15
20
25
30
35
Air inlet temperature (°C)

Technical Data GDH70-Air-Split

Outlet water max. temp. (°C) A10/W35	9,2 kW / COP 3,8
Outlet water max. temp. (°C) A7/W35	8,5 kW / COP 3,5
Outlet water max. temp. (°C) A2/W35	7,1 kW / COP 3,0
Outlet water max. temp. (°C) A-7/W35	6,3 kW / COP 2,3
Starting current	20 A
Operating current	19,2 A
Operating voltage	220V 1NAC 50 Hz
Compressor	Scroll
Max. water flow	2.500 l/h
Fuse	1 x C 25 A
Refrigerant quantity (R407c)	2,9 kg
Outdoor Unit	
High	900 mm
Width	950 mm
Depth	420 mm
Weight	55 kg
Sound level (distance 1 m)	54 dB
Indoor Unit	
High	500 mm
Width	450 mm
Depth	280 mm
Weight	28 kg
Sound level (distance 1 m)	26 dB

Subject to modification. Images for demonstration.


Heating capacity (kW) - GDH120-Eco-Air Split
Heating capacity (kW) - Water outlet 35 °C
30
25
20
15
10
5
0
-20
-15
-10
-5
0
5
10
15
20
25
30
35
Air inlet temperature (°C)


COP - GDH120-Eco Air Split
COP at 35 °C Water outlet
7
6
5
4
3
2
1
0
-20
-15
-10
-5
0
5
10
15
20
25
30
35
Air inlet temperature (°C)

Technical Data GDH120-Air-Split

Outlet water max. temp. (°C) A10/W35	15,9 kW / COP 3,6
Outlet water max. temp. (°C) A7/W35	14,8 kW / COP 3,3
Outlet water max. temp. (°C) A2/W35	12,1 kW / COP 3,0
Outlet water max. temp. (°C) A-7/W35	9,7 kW / COP 2,2
Starting current	22 A
Operating current	20,2 A
Operating voltage	220V 1NAC 50 Hz
Compressor	Scroll
Max. water flow	2.500 l/h
Fuse	1 x C 25 A
Refrigerant quantity (R407c)	3,2 kg
Outdoor Unit	
High	900 mm
Width	950 mm
Depth	420 mm
Weight	55 kg
Sound level (distance 1 m)	54 dB
Indoor Unit	
High	1.400 mm
Width	950 mm
Depth	420 mm
Weight	28 kg
Sound level (distance 1 m)	26 dB

Subject to modification. Images for demonstration.

EC Declaration of Conformity

CE

The undersigned **GDH Energy Co., Ltd.**
No. 340 Dongjiang Road, Zhongye Building,
Free Trade Zone, GETDD,
510730 Guangzhou, China

hereby confirm that the design and construction of the product(s) listes below, in the version(s) placed on the market by us, conform to the relevant requirements of the applicable EC directives.

This declaration becomes invalidated if any modifications are made to product(s) without our prior authorization.

Designation EC Directives
Air-to-water heat pumps EC Low Voltage Directive for outdoor installation, containing R407c
EC EMC Directive
Pressure Equipment Directive

Typ(e): Harmonized EB Standards:
GDH70 Air Split
EN 255:1997
EN 378:2000
DIN 8901
DIN EN 60335-1 (VDE 0700 T1):2005-07 EN603351:2002+A1:2004+A1:2004
DIN EN 60335-2 (VDE 0700 T40):2004-03 EN 60335-2-40:2003
DIN EN 55014-1 (VDE 0875 T14-1):2003-09 EN 55014-1:2000+A1:2001+A2:2002
DIN EN 55014-2 (VDE 0875 T14-2):2002-08 EN 55014-2:1997+A1:2001
DIN EN 61000-3-2 (VDE 0838 T2):2001-12 EN 61000-3-2:2000
DIN EN 61000-3-3 (VDE 0838 T3):2002-05 EN 61000-3-3:1995+Corr.: 1997+A1:2001

National Directives
VBG20
DruckbehV
DIN 8901
DIN 8975
SVTI

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